

U.S. Antarctic Marine Living Resources Program

2012-2013 Weekly Field Reports

Cape Shirreff, Livingston Island

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Science Report

Seabirds

1. Both chinstrap and gentoo penguin peak crèche occurred on 3 February this past week. In the chinstrap reproduction study, 29% of pairs continue brooding at least one chick, 35% have crèched and 36% have failed. Of the gentoo reproduction study nests, 12% are brooding at least one chick, 22% have crèched and 66% have failed.
2. We continue to monitor known-age penguins. Of the 38 known-age gentoo penguin nests 29% are brooding at least one chick, 8% have crèched and 63% have failed. Of 59 known-aged chinstraps that initiated clutches 22% continue brooding at least one chick, 25% have crèched and 53% have failed.
3. We have weighed almost all the chicks from the reproductive study and known-aged breeder nests. The mass is recorded from these chicks at 21 days old to determine their condition before crèche. Only a couple of late hatched chicks remain to be weighed this coming week.
4. We successfully recovered all remaining PTT and TDR instruments this past week that were deployed on brooding chinstrap and gentoo penguins.
5. The visiting macaroni from last week is still hanging around and it appears that he is going to stay and molt with the chinstraps.
6. We continue to sample the diets of the penguins using the wet offloading technique. To date, we have collected samples from 25 chinstrap penguins and 15 gentoos. We record total mass of stomach contents, diet composition, and length and sex frequency of krill for each sample. Chinstrap penguin diet samples have consisted almost entirely of Antarctic krill (*Euphausia superba*) with trace amounts of fish. Gentoo penguin diet samples were a mix of Antarctic krill and fish.
7. Of the 17 brown skua territories that are regularly monitored, seven of these pairs are brooding one chick and 10 have failed.



Pinnipeds

8. Three more CCAMLR attendance study pups have died. Currently, 20 of 30 study females have lost their pups.
9. Trip durations continue to be longer than the average for the past 16 years. Twenty of the thirty attendance study females completed at least six trips to sea before they lost their pup, 10 completed at least eight, and one female has completed 12. Trip durations are as follows: first trip: first trip: 3.97d (s.d.=1.97, n=26), second trip 4.79d (s.d.=2.23, n=25), third trip 4.77 d (s.d.=1.38, n=25), fourth trip 4.36d (s.d.=1.55, n=25), fifth trip 4.74d (s.d.=1.26, n=24), sixth trip 4.86d (s.d. = 1.04, n=19), seventh trip 4.92d (s.d. = 1.21, n=13), eighth trip 4.56d (s.d. = 0.72, n=9). The maximum trip duration remains at 8.91 days.
10. We continue to monitor our adult tagged female population and mother pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Our current estimate for pup loss to leopard seal predation as of 3 February is 22.6%.
11. This week we are collecting our seventh fur seal diet sample of ten scats. To date 69 scats have been collected, and 35 scats have been processed.
12. On February 4 we completed our eleventh weekly Cape-wide Phocid census. We counted 245 southern elephant seals, 12 Weddell seals, and 17 leopard seals.
13. This week we recovered a TDR from an adult female fur seal that lost her pup. That brings the total recovered for the year to eight. These records provide information about foraging and diving behavior. There are four TDRs deployed on adult females.
14. On February 1 we began our Systematic surveys of defined areas of the Cape for the 500 per annum fur seals tagged as pups. This will give us a measure of tags sighted per unit of effort for different cohorts and for different areas of the Cape.
15. On February 2 we conducted our third sample of CCAMLR pup weights. The mean mass was 11.12 kg (s.d. = 0.20, n=59) for males and, 10.89 kg (s.d. = 0.15, n=50) for females.
16. We have flipper tagged 103 fur seal pups for future demographic studies and cohort success. Three of these were the pups of tagged adult females. Our remaining 297 tags for the year will be deployed over the next three weeks.



17. Leopard seals continue to arrive and as of 3 February we have recorded 237 sightings of 30 tagged seals. We have recorded an additional 55 sightings of untagged or otherwise unidentified seals which have been added to our photo-identification database. Twenty of the 30 tagged seals returned from previous years and the other ten we have tagged this year.
18. To date four GPS location instruments have been recovered from leopard seals, and another deployed. These instruments together with stable isotope analysis of blood will help us understand leopard seal foraging behavior and quantify their impact on Antarctic fur seals and penguins. To date we have successfully performed ten leopard seal captures on six animals.
19. During the 2011-12 field season, 10 GLS tags were deployed on leopard seals in order to extend our understanding of over winter leopard seal movements and breeding phenology. As of today four GLS tags have been recovered.
20. Leopard seal CRITTERCAM deployments: In an effort to describe leopard seal foraging ecology, we have deployed four animal-borne video instruments (CRITTERCAM developed by National Geographic's Remote Imaging group) on adult female leopard seals. We have deployed four CRITTERCAM/GPS systems and recovered two of them.
21. We continue to operate the APH-22 hexacopter in order to study nutritive condition in leopard seals, and map/census penguin colonies. This week we surveyed an additional six leopard seals (four with known mass), began our data analysis of images, and refined our technical knowledge of the hexacopter system. To date we have captured over 2,100 aerial images at Cape Shirreff.

Weather

22. Weather this week: Winds averaged 12.1 mph with a maximum wind speed of 55 mph. The predominant wind directions were west (46.7%) and east (34.4%). Precipitation for the week was 0.48 inches bringing the season total to 1.98 inches. The average temperature was 1.6°C with a high of 6.5°C and a low of -0.4°C . Mean daily solar radiation was $12,184\text{ Wm}^2$. Sunrise is now at 4:48 am and sunset is at 9:34 pm.



Camp

23. The human population of Cape Shirreff continues to fluctuate. On Saturday and Sunday the U.S. AMLR team provided support moving Chilean construction gear from the boat landing to the camp, and again with science gear from the camp to the top of El Condor Butte to prepare for the Chilean team's departure. At 04:53 this morning Chilean Navy helicopters landed on El Condor and collected the entire Chilean research and logistics team, and their gear. Seven people departed; their good humor and company will be missed. The current population is six people, all in the NOAA/AMLR camp.
24. Camp maintenance continues apace despite a very busy science schedule. This week. Repairs were made to on 3.5 Mwatt and one 650 Watt generator. Some four year old fuel was treated with preservative in preparation for use, and the workshop was organized for shared use between fur seal team, camp logistics, and hexacopter team. All window and door covers were pulled out at the main camp and bird blind and assessed for needed repairs. Finally, the ATV shed has been cleaned, inventoried and re-organized (it will temporarily serve as the hexacopter 'mini-hangar').
25. All of our sixteen 50 gallon water storage barrels are now full. This solid state of water resources has liberated some residents to take some much needed showers 😊



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